

## **REMARKS/ARGUMENTS**

### **1.) Claim Amendments**

The Applicants have amended claims 1 and 21; claims 2-4, 16-20, 22-24, and 36-41 have been canceled; and claims 42-75 have been added. Accordingly, claims 1, 5-15, 21, 25-35 and 42-75 are pending in the application. Favorable reconsideration of the application is respectfully requested in view of the foregoing amendments and the following remarks.

### **2.) Claim Rejections – 35 U.S.C. § 103(a)**

The Examiner rejected claims 1-11, 14-17, 21-31 and 34-37 under 35 U.S.C. § 103(a) as being unpatentable over "Improving Wireless LAN Performance via Adaptive Local Error Control" (Eckhardt, et al.) in view of Khayrallah, et al. (US 5,920,597). Of these claims, 2-11, 22-24 and 36-37 have been cancelled. The Applicants have amended claims 1 and 21 to better distinguish the claimed invention from Eckhardt and Khayrallah. Specifically, pursuant to Examiner's suggestion in paragraph 1 of the Office Action, independent claims 1 and 21 have been amended, and new claims 42-75 have been drafted, to clearly define that the invention *continuously* estimates a quality condition and *dynamically* determines, based on such continuous estimation, whether the channel is primarily noise limited or interference limited. As a result of such continuous estimation and dynamic determination, the basis for the condition of the channel (noise or interference limited) is ascertained and appropriate changes to the packets are made based thereon. Support for the amendments can be found at page 5, lines 17-22, page 6, lines 1-2 and page 8, lines 6-8 of the present application. Further, the parameters for determining the quality conditions have been added to the claims. Support for these new claims can be found at page 10, line 1 through page 16, line 3 of the present application.

Applicant respectfully traverses Examiner's interpretation of Eckhardt and Khayrallah. Eckhardt discusses the advanced adaptive algorithm FLEX, which can be viewed as a generalization of other algorithms. FLEX adapts packet size and forward error correction ("FEC") independently (See Section 6.3 of Eckhardt). Specifically,

FLEX is not directed toward determining the extent to which noise and/or interference is the problem. Instead the best packet choice is determined by trial and error. Thus, FLEX cannot consistently provide the same result as the present invention. Consider, for example, how the error correcting capability is changed. In FLEX, if no decoding failures are experienced, the decoding capability is decreased. If FLEX were an intelligent method as disclosed in the present invention, it would determine, without trial and error, how many errors were corrected by the code and if the code rate should be changed. The FLEX algorithm is different from the present invention which adapts the packet size and coding as disclosed in Figure 3 of the present invention.

Referring now to Khayrallah, Khayrallah does not address how to determine whether a channel is being noise or interference limited, much less how a device or system should respond once the distinction between noise and interference has been made. For example, Khayrallah does not discuss changing packet lengths. Recall that a channel might be noise limited for short coded packages but interference limited for long packages coded at the same rate. In contrast to the present invention, Khayrallah assumes a fixed (or at least similar) packet length. In the example disclosed by Khayrallah, it is assumed that the channel is noise limited in satellite communication and co-channel interference limited in telecommunication cellular communication. Thus, in Khayrallah, one must know what system is used in order to determine if noise or interference is the problem. Clearly this has nothing to do with using a channel quality measure to determine the source of degradation as provided in the present invention.

There is no suggestion or motivation in either Eckhardt or Khayrallah to combine these two references to obtain the present invention as specifically claimed in claims 1, 5-11, 14, 21, 25-35 or 42-75. Neither Eckhardt nor Khayrallah discuss nor suggest the need to determine if noise or interference is the major cause of degradation. In contrast, the present invention is specifically directed to dynamically adapt based on a determination of whether noise or interference is the cause of the degradation. Further, each of the referenced claims directly, or indirectly, sets forth the basis of which the quality condition which is estimated and determined. Neither Eckhardt nor Khayrallah identify the quality conditions as set forth in the amended claims 1 and 21 and new claims 42-75.

Claims 5-11 and 14 depend from amended claim 1 and recite further limitations in combination with the novel elements of claim 1. Claims 25-35, depend from amended claim 21 and recite further limitations in combination with the novel elements of claim 21. Therefore, the allowance of claims 1, 5-11, 14, 21, 25-35 and 42-75 is respectfully requested.

The Examiner rejected claims 12-13 and 32-33 under 35 U.S.C. § 103(a) as being unpatentable over Eckhardt in view of Khayrallah and in further view of the Bluetooth Core Specification Version 1.0 B (Bluetooth 1.0 B). As noted above, the Applicants have amended claims 1 and 21, from which claims 12-13 and 32-33 depend in order to better distinguish the claimed invention from Eckhardt, Khayrallah and Bluetooth 1.0 B. Bluetooth 1.0B discloses changing between coded and uncoded packages based on channel quality. However, the disclosed algorithm is not based on estimating and determining if noise or interference is the primary cause for degradation. While changing packets based on some channel quality, such as packet error rate alone, may be known in the art, Bluetooth 1.0B does not disclose or otherwise suggest estimating and determining if noise or interference is the primary cause for degradation. There is no suggestion or motivation in any of Eckhardt, Khayrallah or Bluetooth 1.0B to combine these references to obtain the present invention as specifically claimed in claims 12-13 and 32-33. Therefore, the allowance of claims 12-13 and 32-33 is respectfully requested.

The Examiner rejected claims 18-20 and 38-40 under 35 U.S.C. § 103(a) as being unpatentable over Eckhardt in view of Khayrallah and in further view of Ward, et al. (US 5,701,294). The Applicants have canceled claims 18-20 and 38-40.

### **CONCLUSION**

In view of the foregoing remarks, the Applicants believe all of the claims currently pending in the Application to be in a condition for allowance. The Applicants, therefore, respectfully request that the Examiner withdraw all rejections and issue a Notice of Allowance for claims 1, 5-15, 21, 25-35 and 42-75.

The Applicants request a telephonic interview if the Examiner has any questions or requires any additional information that would further or expedite the prosecution of the Application.

Respectfully submitted,



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